

PSYCHOLOGY (AS) {PSYC}

PSYC 001 is normally a prerequisite for Psychology courses numbered 100 and above. Students who have completed the equivalent of the AP course in Psychology are encouraged to enroll in any 100-level course offered. Freshman seminars, when offered, have a similar prerequisite.

001. Introduction to Experimental Psychology. (C) Living World Sector. All classes. Staff. Students seeking extended challenges are invited to apply for admission to the Benjamin Franklin Seminar section, when offered. A CGS section of this course may also be offered. See current timetable.

Introduction to the basic topics of psychology, including learning, motivation, cognition, development, abnormal, physiological, social, and personality.

020. Probability and Statistics. (C) May be counted as a General Requirement Course in Formal Reasoning & Analysis. Class of 2009 & prior only. White. This is a Benjamin Franklin Scholars course.

An introduction to statistics, statistical methods, and probability theory. The course will cover: the nature of statistical data; estimation and hypothesis testing; concepts of statistical inference; measures of central tendency and variability; elementary probability; ANOVA; regression and correlation; non-parametric methods. Emphasis will be placed on application to research in the behavioral sciences. In addition, there will be an introduction to some of the most popular computer-based statistical programs.

SM 050. Human Nature. (A) May be counted as a General Requirement Course in Science studies. Class of 2009 & prior only. Staff. Freshman Seminar.

A seminar on the natural heritage of our species, based on historically ordered original sources and active weekly discussion. Seven perspectives from western civilization will progress from earlier mythological, literary, and philosophical sources to the scientific paradigm of inquiry into basic human nature. Exemplars will be drawn from antiquity, the later Greco-Roman period, the medieval era, the Enlightenment, the mid-nineteenth century, the early twentieth century, and the present time. Students should have : 1) fluent command of oral and written English; 2) curiosity about natural science in liberal education; 3) serious intellectual commitments.

107. (CIS 140, COGS001, LING105, PHIL044) Introduction to Cognitive Science. (A) Staff. Prerequisite(s): An Introductory Course in Computer Science, Linguistics, Neuroscience, Philosophy, or Psychology.

Cognitive Science is founded on the realization that many problems in the analysis of human and artificial intelligence require an interdisciplinary approach. The course is intended to introduce undergraduates from many areas to the problems and characteristic concepts of Cognitive Science, drawing on formal and empirical approaches from the parent disciplines of computer science, linguistics, neuroscience, philosophy and psychology. The topics covered include Perception, Action, Learning, Language, Knowledge Representation, and Inference, and the relations and interactions between such modules. The course shows how the different views from the parent disciplines interact, and identifies some common themes among the theories that have been proposed. The course pays particular attention to the distinctive role of computation in such theories, and provides an introduction to some of the main directions of current research in the field. It is a requirement for the BA in Cognitive Science, the BAS in Computer and Cognitive Science, and the minor in Cognitive Science, and it is recommended for students taking the dual degree in Computer and Cognitive Science.

L/R 109. (BIBB109, BIOL219) Introduction to Brain and Behavior. (C) Living World Sector. All classes. staff. Prerequisite(s): PSYC 001 or Permission of Instructor.

Introduction to the structure and function of the vertebrate nervous system, including the physiological bases of sensory activity, perception, drive, motor control and higher mental processes. The course is intended for students interested in the neurobiology of behavior. Familiarity with elementary physics and chemistry will be helpful.

111. (VLST211) Perception. (C) May be counted as a General Requirement Course in Living World. Class of 2009 & prior only. staff. Prerequisite(s): PSYC 001. A CGS section may be given.

How the individual acquires and is guided by knowledge about objects and events in their environment.

L/R 117. (BIBB217, VLST217) Visual Neuroscience. (B) Staff. Prerequisite(s): PSYC 001, PSYC/BIBB 109, COGS 101 or VLST 101.

An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, color vision, anatomy and physiology of the visual pathways, and the cognitive neuroscience of vision.

121. Learning. (C) Rescorla. Prerequisite(s): PSYC 001. A CGS section may be given.

Changes in behavior resulting from past experience. The acquisition, maintenance, and elimination of behavior, and the effects of previous experience on responses to new situations.

125. (BIBB270) Drugs, Brain & Mind. (B) staff. Prerequisite(s): BIBB 109/PSYC 109.

The course will begin with a review of basic concepts in pharmacology: routes of drug administration, drug metabolism, the dose response curve, tolerance and sensitization. Following a brief overview of cellular foundations of neuropharmacology (cell biology, synaptic and receptor function), the course will focus on various classes of drugs used to treat neuropsychiatric disorders including, among others, depression, schizophrenia and anxiety. We will additionally consider mechanisms mediating the mind-altering, addictive and neurotoxic effects of abused drugs.

127. (BIBB227) Physiology of Motivated Behaviors. (C) May be counted as a General Requirement Course in Living World. Class of 2009 & prior only. Grill. Prerequisite(s): PSYC 001.

This course focuses on evaluating the experiments that have sought to establish links between brain structure (the activity of specific brain circuits) and behavioral function (the control of particular motivated and emotional behaviors). Students are exposed to concepts from regulatory physiology, systems neuroscience, pharmacology, and endocrinology and read textbook as well as original source materials. The course focuses on the following behaviors: feeding, sex, fear, anxiety, the appetite for salt, and food aversion. The course also considers the neurochemical control of responses with an eye towards evaluating the development of drug treatments for: obesity, anorexia/cachexia, vomiting, sexual dysfunction, anxiety disorders, and depression.

131. (BIBB231, BIOL231) Animal Behavior. (C) May be counted as a General Requirement Course in Living World. Class of 2009 & prior only. Seyfarth/Cheney/White. Prerequisite(s): PSYC 001 or BIOL 102.

The evolution of social behavior in animals, with special emphasis on group formation, cooperation among kin, mating systems, territoriality and communication.

135. (LING135) Psychology of Language. (C) Dahan. Prerequisite(s): PSYC 001 or LING 101. A CGS section may be offered.

This course describes the nature of human language, how it is used to speak and comprehend, and how it is learned. Subtopics include animal communication, language pathologies, second-language learning, and language in special populations (such as Down Syndrome and autistic children, and children born deaf or blind).

139. (BIBB260) Neuroendocrinology. (C) staff. Prerequisite(s): BIBB 109, or one year of introductory biology or permission of instructor.

This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates. We will focus on sexual and parental behaviors, aggression and ingestion.

L/R 149. (BIBB249) Cognitive Neuroscience. (C) Living World Sector. All classes. Thompson-Schill/Epstein. Prerequisite(s): PSYC 001 or BIBB 109. A CGS section may be given. There is no recitation section for Dr. Epstein's lecture course.

The study of the neural systems that underlie human perception, memory and language; and of the pathological syndromes that result from damage to these systems.

151. Cognitive Psychology. (C) Trueswell. Prerequisite(s): PSYC 001. A CGS section may be given. A Benjamin Franklin Seminar version of this course may be offered. See current timetable.

Analysis of mental processes in adult humans: Attention, Pattern recognition, Imagery, Memory, Action. Mental architecture.

153. (PPE 153) Judgments and Decisions. (C) May be counted as a General Requirement Course in Formal Reasoning & Analysis. Class of 2009 & prior only. Baron. Prerequisite(s): one semester of statistics OR microeconomics. A CGS section may be given.

Judgments, decisions under certainty and uncertainty, problem solving, logic, rationality, and moral thinking.

155. Attention and Memory. (C) Jha. Prerequisite(s): PSYC 001 or BIBB 109.

A study of topics in human memory and attention including an overview of current experiments investigating: multiple memory systems, attentional selection, the interrelationship between memory and attention, dysfunction due to disease states and aging, exceptional functioning, and strategies to improve memory and attentional processes. Particular emphasis is given to the neural basis of cognitive processes.

159. Human Memory. (C) Kahana.

An introduction to the scientific study of human memory, with a particular emphasis on the interplay between theory and experiment. Topics will include dual store models and the debate over short-term memory, recognition memory for items and associations, the role of time and context in memory formation and retrieval, theories of association, memory for sequences, the influence of prior knowledge on new learning, spatial and navigational memory, perceptual learning, classification and function learning, memory disorders, and developmental changes in memory function.

160. Personality. (C) Ali. Prerequisite(s): PSYC 001. A CGS section may be given.

The course will introduce several key theorists in personality psychology. Students will learn and evaluate psychodynamic, behavioral, cognitive, humanistic, and biological perspectives, and they will become familiar with the major methods of personality assessment. The course will additionally review constructs in trait psychology such as self-esteem and introversion/extraversion. Through media, literature, and various experiential assignments, students will be able to apply course concepts toward self-understanding.

162. Abnormal Psychology. (C) May be counted as a General Requirement Course in Living World. Class of 2009 & prior only. Staff. Prerequisite(s): PSYC 001. A CGS section may be given.

The concepts of normality, abnormality, and psychopathology; symptom syndromes; theory and research in psychopathology and psychotherapy.

168. Human Sexuality. (C) Distribution Course in Society. Class of 2009 & prior only. Kurzban. Prerequisite(s): PSYC 001.

This course will cover topics ranging from the anatomy and physiology of the human reproductive system to the cognitive systems that underpin human sexual behavior. Throughout, there will be an emphasis on the relationship between the features of these physical and cognitive mechanisms and the evolutionary functions these systems were designed to serve.

170. Social Psychology. (C) Society Sector. All classes. Staff. Prerequisite(s): PSYC 001. A CGS section may be given.

An overview of theories and research across the range of social behavior from intra-individual to the group level including the effects of culture, social environment, and groups on social interaction.

172. Biocultural Psychology. (C) Staff. Prerequisite(s): PSYC 001.

This course will present human psychology and behavior as viewed by cultural psychologists on the one hand and biological psychologists on the other. The presuppositions of each approach will be deeply examined in order to separate tendentious disciplinary controversy from useful contributions that each side makes to an understanding of human behavior. Students will be challenged to construct a synthetic view of human behavior that causally articulates---rather than merely meshes---these two approaches in order to achieve a better understanding of the causes of human behavior, the distribution of ideas in social systems, and their historical trajectories.

176. Human Reproductive Decisions: Evolutionary and Ecological Perspectives. (C) staff.

Human sex and fertility, emphasizing the strengths and weaknesses of evolutionary and ecological approaches. Questions to be addressed include: Why do some people begin having sex before others? Why do some people use birth control and others do not? Why do some people begin having children in their teens and others in their 30's? Why do some men "take responsibility" for their partners' children and others avoid it? Why do some people want to regulate people's reproductive decisions and others do not?

180. Developmental Psychology. (C) Society Sector. All classes. Staff. Prerequisite(s): PSYC 001. A CGS section may be given.

A developmental perspective on the general empirical and theoretical psychology of perception, cognition, language, learning, comparative ethology, and socialization.

181. Cognitive Development. (C) Swingley. Prerequisite(s): PSYC 001.

What infants and young children come to know about the world, and how they learn it. Topics will include changes in children's thinking, perceptual development, language acquisition, and current theories of cognitive development

259. SPECIAL TOPICS COG NEURO. (C) staff.

421. (BIOL442, INSC575) This advanced course focuses on the current state of our knowledge about the neurobiological basis of learning and memory. A combination of lectures and student seminars will explore the molecular and cellular basis of learning in invertebrates and vertebrates from a behavioral and neural perspective. (C) abel/muzzio.

This advanced course focuses on the current state of our knowledge about neurobiological basis of learning and memory. A combination of lectures student seminars will explore the molecular and cellular basis of learning invertebrates and vertebrates from a behavioral and neural perspective.

SM 473. Neuroeconomics. (C) Kable.

This course will review recent research that combines psychological, economic and neuroscientific approaches to study human and animal decision-making. A particular focus will be on how evidence about the neural processes associated with choices might be used to constrain economic and psychological theories of decision-making. Topics covered will include decisions involving risk and uncertainty, reinforcement learning, strategic interactions and games, and social preferences.

SM 715. Teaching Seminar. (C) Rozin. Prerequisite(s): For graduate students in Psychology.

This course is designed to aid graduate students in developing fundamental teaching skills. The focus will be on lecturing, applicable to job talks as well as classroom lectures, but there will also be some attention to discussion sections and handling of questions.

Advanced Courses

Topics covered in the 200 level courses will change from term to term. Not every course will be offered every term. Detailed course descriptions will be available from the undergraduate secretary before the preregistration period each semester.

SM 211. Special Topics in Perception. (C) staff. Prerequisite(s): PSYC 111 or 117 or permission of Instructor.

SM 221. Special Topics in Learning. (C) Prerequisite(s): PSYC 121.

SM 223. (BIBB423) Special Topics in Motivation. (C) staff. Prerequisite(s): Psyc 109, 123 or permission of the Instructor.

SM 249. S/T Cognitive Neuroscience. (C) Jha. Prerequisite(s): PSYC 149/BIBB 249 or PSYC 155 or instructor permission.

Cognitive Neuroscience of Meditation. As well as being an ancient spiritual practice central to many religious traditions, meditation has recently been reported to result in improved psychological and physical health. Meditation is defined as paying attention in a particular way, on purpose, in the present moment, and non-judgmentally (Kabat-Zinn, 1994). In this course, we consider the hypothesis that meditations beneficial effects may be mediated by entraining the human attention system. We will read and discuss the cognitive neuroscience of attention and the neural bases of meditation. In addition, students will be introduced to mindfulness-based meditation techniques increasingly used in combination with traditional medical and psychotherapeutic interventions. Students are required to read journal articles and book chapters as well as participate in classroom discussions. Students are also required to write several short papers. This seminar course is only open to advanced psychology majors.

SM 251. Special Topics in Cognitive Psychology. (C) Prerequisite(s): PSYC 151, 157 or 107.

SM 253. (PPE 475) Special Topics in Behavioral Law and Economics. (C) Baron. Prerequisite(s): Some background in judgments and decisions, political psychology, philosophy, economics or political science. Permission of instructor.

Economic theory has invaded legal scholarship and law schools, in the form of "Law and economics." But the psychology of judgments and decisions has invaded economic theory, showing that people do not follow the classic model of economic rationality. Many legal scholars, such as Cass Sunstein, claim to have started a new field called "Behavioral law and economics," which explores the implications of psychology for legal theory. This seminar will review basic readings in law and economics and then the recent review of the relevance of psychology. Topics include risk regulation, liability, and regulation of political behavior.

SM 260. Special Topics in Personality. (C) staff. Prerequisite(s): PSYC 160 or 164.

SM 262. Special Topics in Abnormal Psychology. (C) staff. Prerequisite(s): PSYC 162.

SM 270. Special Topics in Social Psychology. (C) staff. Prerequisite(s): PSYC 170, 172 or permission of instructor.

SM 280. Special Topics in Developmental Psychology. (C) staff. Prerequisite(s): PSYC 180 or permission of instructor.

Special Topics in Developmental Psychology

299. Individual Scholarly Research. (C)

Individual research of a scholarly nature, under the supervision of a faculty member, leading to a written paper. Normally taken in the junior or senior year.

SM 311. (VLST212) Research Experience in Perception. (C) staff. Prerequisite(s): PSYC 111 and one semester of statistics.

Experiments examining auditory and visual perceptual processing. Exercises examining stimulus and response measures, replications of classic perceptual experiments on contrast masking and pattern/object perception.

SM 321. Research Experience in Learning. (C) Rescorla. Prerequisite(s): PSYC 121 and one semester of statistics.

Students will conduct research in elementary learning processes. Initially the class will meet as a whole to conduct some present experiments which provide an initial basis for a short report. Then students will work in small groups to formulate, conduct, and write up projects of their own.

SM 327. Research Experience in Behavioral Neuroscience. (C) Grill. Prerequisite(s): PSYC 127 and one semester of statistics.

Students conduct supervised experiments on the physiological basis of motivation. Topics will be chosen from the intersection of issues in taste and nutrition, such as the ability of animals to take in specific food substances needed to maintain themselves. Class meets for lecture, discussion, and conduct of an experiment.

SM 331. Research Experience in Animal Behavior. (C) White. Prerequisite(s): Psychology 131 or BIBB 231, BIOL 231 and one semester of statistics.

Students will learn how to study scientifically the behavior of animals. We will take an evolutionary and ecological approach to studying several different types of behavior across different species in both laboratory and field environments. Students will gain experience designing and conducting animal behavior experiments as well as analyzing results and presenting their findings.

SM 335. Research Experience in Language. (C) Dahan. Prerequisite(s): PSYC 135 and one semester of statistics.

Students will work in research teams to read intensively in an aspect of language learning, and then to design and conduct an experiment with young children. Initial meetings will discuss the projects of the various teams. Later meetings will involve oral presentation of the results.

349. Research Experience in Cognitive Neuroscience. (C) staff. Prerequisite(s): PSYC 149 and one semester of statistics.

Brain imaging, particularly functional magnetic resonance imaging (fMRI), is a promising state-of-the-art tool used to study specialized human brain regions that are involved in cognitive functions. In the first half of the course, we will review the basics of the fMRI technique, current experimental design and analysis strategies, and discuss the strengths and weaknesses of neuroimaging as a tool for cognitive neuroscientists. In the second half of the course, students will form into groups and propose a new experiment. As a team, you will program the experiment, acquire the fMRI data, and analyze your data. Each student will submit a paper describing the project and each group will give a presentation of their research.

SM 351. Research Experience in Cognitive Psychology. (C) Trueswell. Prerequisite(s): PSYC 151, and one semester of statistics.

Students will explore topics in human memory, knowledge representation, attention, and language processing. Laboratory exercise will include replications of major experiments and novel extensions permitting students to develop psychological hypotheses and the experimental rationale to test them.

SM 353. Research Experience in Decision Making. (C) Baron. Prerequisite(s): Some prior familiarity with decision making (e.g. Psyc 153) and statistics would be helpful and students must be willing to deal with computer programs (with help).

This course will focus on medical decision making. After some background reading and homework, groups of students will design experiments, analyze the data, and write reports. Possible topics include decision biases, judgments of the benefits of treatment or prevention, adaptation to disability, and the development and evaluation of decision aids. The experiments will be done on the World Wide Web.

SM 362. Research Experience in Abnormal Psychology. (E) staff. Prerequisite(s): PSYC 162 and one semester of statistics. Open only to juniors and seniors.

Students will collect, analyze, and write up a research project in the domain of psychopathology, broadly construed. Reanalysis of elements of large data sets, such as the National Depression Collaborative Studies, will also be done. Please note: PSYC 362-301 is a year-long course, and admission is by instructor permission only (Dr. Melissa Hunt), an application essay is required.

SM 364. Research Experience on the Theory of Persons. (C) staff. Prerequisite(s): PSYC 160 and one semester of statistics.

Personality theories rest on two traditions of measurement: one focuses on general trends and population averages, the other on particulars of individual cases. This seminar will explore these traditions by designing and comparing two experimental instruments, one rooted in each methodology. The seminar will contrast the assumptions underlying each tradition, and examine the results obtained with the experimental instruments in terms of the inferences--behavioral and theoretical--they permit.

SM 370. Research Experience in Social Psychology. (C) staff. Prerequisite(s): PSYC 170 and one semester of statistics.

Students will design, conduct, and report on an empirical question in social psychology. The research may involve experiments, content analysis, cross-cultural comparison, interviewing, observations, or other methods. Class discussions will help students formulate their projects and provide an opportunity for reports.

SM 372. Research Experience in Biocultural Psychology. (C) staff. Prerequisite(s): PSYC 170 or 172 or 174, and one semester of statistics.

The areas of research that students will be able to choose from in this course will include (1) mechanisms of social learning such as prestige bias and conformism; (2) essentialism of species and ethnic categories; (3) narrative memory; and (4) experimental economics. Students will develop a hypothesis, design an experiment, carry it out, and write an analysis of the results.

SM 374. Research Experience in Evolutionary Psychology. (C) Kurzban. Prerequisite(s): One semester of statistics.

In this course, students will, in consultation with the instructor, develop hypotheses and then design, carry out, and write up original research in evolutionary psychology. Topics will focus on adaptations for social life, including: social categorization, cooperation, social exclusion, mating, friendship, and so on.

SM 386. Research Experience in Developmental Psychology. (C) staff. Prerequisite(s): PSYC 180 and Stat 111 (or its equivalent) or permission of instructor.

This class will focus on observational methods of studying children, with attention to the entire scope of the research process. Readings and class discussion will be aimed at supporting the research projects which each student will do. Working individually or in groups, students will define a research question relevant to some issue in Developmental Psychology, develop an appropriate observational measure, use the measure to observe young children in a naturalistic setting, and analyze and interpret the findings.

399. Individual Empirical Research. (C)

Individual research involving data collection. Students do independent empirical work under the supervision of a faculty member, leading to a written paper. Normally taken in the junior or senior year.

SM 400. Senior Honors Seminar in Psychology. (C) Thompson-Schill. Prerequisite(s): acceptance into the Honors Program in Psychology.

Open to senior honors candidates in psychology. A two-semester sequence supporting the preparation of an honors thesis in psychology. Students will present their work in progress and develop skills in written and oral communication of scientific ideas.

SM 407. (BIBB451) Behavioral Genetics. (C) Price. Prerequisite(s): Basic statistics or permission of instructor.

This course will cover basic principles of human and animal behavior genetics, including the genetics of normal variation as well as extreme phenotypes represented by behavioral, psychiatric and neurologic disorders. The course will focus on methods necessary to critically evaluate research findings on normal and abnormal human behavior. Animal models will also be reviewed.

413. (MUSC090) Psychology of Music. (C) staff. Prerequisite(s): PSYC 001.

This course brings together two seemingly very different subjects, the art of music and the science of psychology. Parallel theories, empirical evidence, and demonstrations of how fundamental psychological processes are used in the musical repertory will explore common convergences between the two fields. Major subjects covered include psychophysics; perception and cognition of melody, rhythm, harmony, and timbre; musical structures; learning, memory, tonality, and musical style; development; emotion, affect, and aesthetics; performance; social psychology; neural processing; and the biological origins of music.

SM 431. (BIOL432) Topics in Behavioral Ecology. (C) Cheney. Prerequisite(s): PSYC 131 or PSYC 133 or BIOL 321/BIBB 231.

The aim of this course will be to provide advanced undergraduates with a detailed review of a number of research areas in behavioral ecology. Topics will change each year, and students will be able to take the course more than once.

SM 439. (BIBB460) Neuroendocrinology. (C) Flangan-Cato. Prerequisite(s): PSYC 109. formerly Psyc 139.

This course is designed to examine the various roles played by the nervous and endocrine systems in controlling both physiological processes and behavior. First, the course will build a foundation in the concepts of neural and endocrine system function. Then, we will discuss how these mechanisms form the biological underpinnings of various behaviors and their relevant physiological correlates. We will focus on sexual and parental behaviors, stress, metabolism, neuroendocrine-immune interactions, and mental health.

SM 441. (BIBB441) Genetics, Evolution, and Behavior. (C) staff.

Genetic and environmental components of I.Q., personality, and psychopathology. Evolutionary psychology; basic evolutionary theory; evolution of altruistic, cooperative, and competitive behavior. The course develops and makes extensive use of elementary mathematical and statistical models.

SM 451. Animal Communication. (C) Seyfarth. Prerequisite(s): PSYC 131/BIBB 231/ BIOL 231 or permission of the instructor.

This course will review recent research on communication of animals, with particular emphasis on the vocalizations of birds, dolphins, whales, monkeys, and apes. We will consider the neural mechanisms that underlie signals, the information they provide to listeners, and we will examine how communication functions in social interactions. We will also discuss the possible parallels that may exist between the communication and human language.

SM 459. Visual Cognition. (C) Epstein.

This course examines the interaction of vision with higher-order cognitive processes. In plain terms: once the visual system has recovered a set of surfaces from the surrounding scene, what does the brain then do with that information to make it useful? Possible topics will include: object and face recognition, attention, awareness, mental imagery, spatial cognition, and action. Particular emphasis will be placed on cognitive neuroscientific work that addresses these topics.

SM 462. Developmental Psychopathology. (C) staff. Prerequisite(s): PSYC 162 or 160 or 180.

Students in this course will study major theories in developmental psychopathology. Current knowledge about disorders of cognitive, emotional and social functioning observed in children and their determinants will be discussed. Clinical applications (diagnosis, assessment, and psychotherapy) will also be considered.

SM 471. Primate Behavior. (C) Seyfarth. Prerequisite(s): PSYC 001 and 131 or 133.

This course will review what is currently known about the evolution, ecology, and behavior of our closest animal relatives, the nonhuman primates. Topics to be covered include the divergence of New World monkeys, Old World monkeys, and Apes; group formation and territoriality, mating systems; kinship, dominance, and reciprocity; social relationships, tool use, and intelligence.

474. Cooperation in Groups. (C) Kurzban. Prerequisite(s): PSYC 001.

Humans are unique in their abilities to cooperate in large groups of non-kin. In this course, we will explore the evolutionary origins of this phenomenon, and look at relevant theory research in social psychology, anthropology, and economics.

SM 475. (PPE 475) Philosophy, Politics and Economics. (C) Baron/Dana. Students will write several brief papers about the reading and one longer seminar paper on one policy issue.

The philosophy of utilitarianism, intended as a basis for government, holds that government should try to increase total good (or, looking at it from the other side, decrease total bad). Modern governments try to do this in several ways: economic theory itself is partly utilitarian; some forms of cost-benefit analysis are more explicitly utilitarian; and some citizens and politicians adopt this as their own goal. Two impediments stand in the way of this program: 1., the difficulty of measuring utility; and, 2., the existence of powerful non-utilitarian intuitions about fairness, agency, and political participation itself. This seminar will first introduce some relevant utilitarian theory and some psychological research on utility measurement and moral intuitions, and it will then discuss attempts to apply utilitarianism to public policy, with particular emphasis on health care and environmental issues. Possible topics (somewhat up to the class) include health-care rationing, Superfund and risk regulation in general, fisheries regulation, the Food and Drug Administration's policies for new drugs, population policy, active euthanasia, and global warming (international equity issues, and the Geritol solution).

First-Year Graduate Courses

501. (COGS501, LING545) Mathematical Foundations for Language and Communication Science I. (D) Liberman.

This two-semester sequence will provide basic mathematical modeling and algorithmic tools for interdisciplinary research in animal, human or machine communication, in association with the IRCS IGERT program. Topics include signal processing, statistical modeling and machine learning, information theory, game theory, and formal language theory. The courses will be taught in a laboratory setting, and will emphasize practical skills as well as basic concepts.

502. (COGS502, LING546) Mathematical Foundations for Language and Communication Science II. (D) Liberman.

This two-semester sequence will provide basic mathematical modeling and algorithmic tools for interdisciplinary research in animal, human or machine communication, in association with the IRCS IGERT program. Topics include signal processing, statistical modeling and machine learning, information theory, game theory, and formal language theory. The courses will be taught in a laboratory setting, and will emphasize practical skills as well as basic concepts.

SM 600. Proseminar in General Psychology. (C) staff.

Choice of up to sixteen half or full course units, covering the range of subjects and approaches in academic psychology.

601. Systems Neuroscience Proseminar. (C) Palmer. Prerequisite(s): Permission of course director.

As a basic introduction to systems neuroscience, this course begins with a treatment of useful mathematical tools and examples of their application to linear and nonlinear neural systems and to single and multiple spike train analysis. The rest of the course consists of studies of individual systems (including physiological, anatomical, and behavioral techniques) and concludes with an overview of experimental and theoretical studies at the cognitive level.

SM 602. Neuroendocrinology and Neuroendocrine-immunology Proseminar. (K) Flanagan-Cato.

Prerequisite(s): Permission of course director.

Neuroendocrine regulation and interactions with the immune function will be covered. The focus of the lectures will be on in-depth understanding of selected general areas rather than being an exhaustive but shallow overview. Included are core lectures on the neuroanatomy of the hypothalamus and basic concepts of immunology. There will also be group discussions of groundbreaking, innovative approaches to these fields.

SM 603. (INSC595) Behavioral Neuroscience Prosem. (H) Fulfills the "Brain" requirement.

Current research on the neural basis of behavior is organized in six subsections: animal communication, sex behavior, circadian rhythms, variety energy and water balance, synaptic plasticity and learning, and communication, addiction. Topics are selected based on excitement surrounding recent research developments. Each topic is analyzed initially at thernal receptors behavioral level, followed by the systems and the cell and molecularntrol of levels. Throughout the course, attention is paid to the analysision of behavior interesting stereotyped behaviors, e.g., bird song, lordosis, licking,. whose description and neurology has provided insights into the neural basis systems that contribute to overall neural control of behavior. Attention is also paid to the development of understanding of the neuroanatomy of selected neural systems.

SM 604. (INSC592) Cognitive Neuroscience Proseminar. (C) Farah.

Review of what has been learned about the neural mechanisms underlying intelligent behavior in humans and animals. Traditional topic areas of cognitive science are covered, specifically: vision (early vision through object recognition), attention, learning and memory, motor control, planning and problem-solving, and language. Attempts are made to

integrate results of different neuroscience approaches to each topic, including the study of human neurological patients, lesion studies in animals, single unit recordings, neural network modelling, and functional imaging techniques.

605. (INSC582, PHRM540) Behavioral Neuropharmacology Proseminar. (C) Lucki and Staff.

Prerequisite(s): Permission of course director.

The effects of various drug classes on animal behavior are examined. Behavioral studies identifying the neurochemical mechanisms of action of psychotropic drugs are reviewed. Animal models of neurological and psychiatric illnesses are discussed.

608. (OPIM900) Judgments and Decisions. (C) Baron.

Thinking, judgment, decision making, beliefs, and probability, with emphasis on fallacies and errors.

SM 609. (INSC573) Systems and Integrative Neuroscience. (A) Fulfills the Brain requirement.

610. (STAT501) Mathematics for Psychologists. Both terms. 89c.

611. (BSTA550, STAT500) Statistics for Psychologists. (A)

612. (STAT501) Advanced Topics in Statistics. (B)

SM 630. (INSC630) Cognitive Neuroscience of Memory. (C) Fulfills the Brain requirement.

This course will review the neural mechanisms of learning and memory. Readings will include both seminal and cutting-edge papers on topics ranging from perceptual memory to higher order functions, including working memory, declarative memory, skill learning, and semantic memory. Within each topic we will attempt to integrate the results of different neuroscience approaches, including the study of human neurological patients, lesion studies and single unit recordings in animals, neural network modeling, event-related potentials, and functional imaging techniques.

631. (INSC631) Cognitive Neuroscience of Affect. (C) Farah.

We will survey, and as far as possible, synthesize, three bodies of literature on emotion and the brain, specifically: (1) neuroimaging and pharmacologic studies of emotion and the normal human brain; (2) the neuroscience of affective disorders in humans; and (3) relevant studies of reinforcement and learning in animals.

632. (INSC632) Cognitive Neuroscience of Vision. (C) Epstein.

This course will review the neural basis of visual cognition. Emphasis will be placed on linking cognitive theory to neuroscientific methods. Topics will include object and face recognition, scene perception, visual attention, mental imagery, and visual awareness.

SM 664. Psychology of Human Nature. (C) Williams.

Psychologists have studied people and their minds from many perspectives, and when the findings and theories are put together, a comprehensive portrait of human nature emerges. During the semester, we will integrate major findings and concepts from a variety of psychological subfields, including perception, learning, cognitive, developmental, evolutionary, personality/social and clinical psychology. Each week, we will consider the contribution a particular subarea makes to the overall picture we are developing, using original as well as text-book sources. In class, we will discuss what each week's material has contributed to psychology's understanding of human nature as a whole. At our last meeting, we will step back and examine the representation of human nature that we have constructed: its strengths, limitations, and relation to alternatives.

699. Individual Research for First-Year Graduate Students. (C)

Seminars

SM 702. Experimental Psychopathology. (C)

SM 703. Special Topics in Psychology. (C)

SM 704. Research Methods and Statistical Procedures for Social and Clinical Sciences. (C)

This course has three primary objectives: 1) developing criteria and strategies for strong inference of causal relationships in social and clinical psychology research; 2) examining the array of research designs employed in the social/clinical sciences together with the threats to internal and external validity associated with each; 3) learning and applying statistical analytical methods appropriate for questions in the social/clinical sciences. The course will employ a seminar format and a project-oriented approach to learning. Students will be encouraged to utilize examples from their own research programs in applying the design and analysis concepts covered in the course.

SM 709. Special Topics in Clinical Psychology. (C)

In this seminar we will review current evidence regarding etiology of major psychosomatic disorders. We will pay specific attention to current explanatory models that invoke psychological contribution to disease.

SM 711. Basic Problems in Developmental II. (C)

SM 727. (INSC727) Electronics for Scientists. (B) Andrews-Labenski.

Introductory electronics for scientists. A basic theory and practicum course covering the principles of direct and alternating current, test equipment, semiconductor devices, analog and digital circuits, computer interfacing, and signal processing.

SM 730. Special Topics in Motivation. (C)

SM 733. (INSC588) Special Topics in Vision. (C)

SM 736. Special Topics in Language. (C)

SM 739. Special Topics in Perception. (C)

SM 745. (INSC583) Special Topics in Cognitive Neuroscience. (C)

750. (INSC576, PHRM550) Special Topics in Neuropsychopharmacology. (C) Lucki and Staff.

Prerequisite(s): Permission of Instructor.

Biological issues relevant to neuropsychiatric illnesses are covered in detail in four sections. The first section covers clinical aspects of major psychiatric disorders and includes some contact with patients. The second section presents the neuroanatomy of the limbic system. In the third section, emphasis is on the mechanisms of action of psychotropic drugs, including antidepressants, antipsychotics, anxiolytics, and stimulants. The final section covers information relevant to understanding biological processes that may be abnormal in neuropsychiatric illnesses, such as stress, sleep, and circadian rhythms, as well as quantitative genetics.

SM 751. Special Topics in Cognitive Psychology. (C)

SM 757. Language and Communication Sciences Research Seminar. (M) Trueswell.

SM 769. Special Topics in Physiological Psychology. (C)

SM 770. (PSCI770) Special Topics in Social Psychology. (C)

SM 774. (COMM577) Attitude and Behavioral Prediction. (C) Fishbein.

An introduction to the concept of attitude and its role in behavioral prediction. The course will cover standardized attitude measurement instruments (e.g., Thurstone, Likert, Guttman and Semantic Differential Scales), expectancy-value models, and psychological or individual level theories of behavioral prediction and change (e.g., Health Belief Model, Theory of Reasoned Action, Theory of Planned Behavior, Social Cognitive Theory, Theory of Interpersonal Relations and Subjective Culture, and the Transtheoretical Stage of Change Model). Emphasis will be placed upon how an understanding of theory and measurement is necessary for developing effective behavior change interventions.

SM 810. Psychodiagnostic Testing. (A)

SM 811. Psychodiagnostic Interviewing. (A)

SM 815. Introductory Practicum. (B)

SM 820. Advanced Practicum. (C)

Intensive studies of single individuals including interviews, tests, and experiments; also clinical experience at appropriate community agencies.

999. Individual Study and Research. (C)